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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/456,184	12/07/1999	HIROYUKI OKADA	15162/01320	6102

24367            7590            02/11/2003  
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EXAMINER	
DOUGHERTY, THOMAS M	
ART UNIT	PAPER NUMBER

2834

DATE MAILED: 02/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.	OKADA, HIROYUKI
Examiner Thomas M. Dougherty	Art Unit 2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) Responsive to communication(s) filed on 23 December 2002.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) Claim(s) 1,2,4-6,17-24 and 26-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 1,2,4-6,17-24 and 26 is/are allowed.
- 6) Claim(s) 27, 28, 31, 33 and 36 is/are rejected.
- 7) Claim(s) 29,30,32,34,35 and 37 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 07 December 1999 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ .
- 4) Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_ .
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_ .

**Remarks**

The Applicants' amendment has indicated that claims 3 and 25 are to be canceled. Claim 3 notes cancellation in page 3 of the Amendment and claim 25 notes cancellation in page 5 of the Amendment. The claims have been canceled. However page 2 of the Amendment notes that these claims have only been amended. If it is desired that these claims be included for consideration of patentability, it will be necessary to provide these two claims as new claims in a subsequent amendment.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 27, 28, 31, 33 and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Myers (US 4,653,101). Myers shows (fig. 4) a driving apparatus (62) for driving a piezoelectric element (22) serving as a driving source of an actuator (24) comprising: a waveform generator (whatever puts a signal on input line 12) for generating a waveform signal varying over time; a first driver (18) for generating a first driving signal (20), wherein the first driving signal has a maximum voltage smaller than a voltage of inversion of polarization of the piezoelectric element (a requirement or the device would not function) and has a first waveform derived from the waveform signal, the first driver (18) being coupled to provide the first driving signal to the piezoelectric

element (22) in the polarization direction of the piezoelectric element (note that "the transducer 22 has amplifier outputs 20 applied to its opposite poles ...", see col. 5, lines 15-18); and, a second driver (also 18) for generating a second driving signal (also 20), wherein the second driving signal has a maximum voltage smaller than a voltage of inversion of polarization of the piezoelectric element (a requirement or the device would not function) and has a second waveform derived from the waveform signal, the second driver (18) being coupled to provide the second driving signal to the piezoelectric element (22) in the polarization direction of the piezoelectric element (again note that "the transducer 22 has amplifier outputs 20 applied to its opposite poles ...", see col. 5, lines 15-18).

The second waveform is an inversion of the first waveform (note that 64 is a 180 degree phase inverter).

The first driver (18) and the second driver (also 18) respectively include an amplifier for amplifying the signal from the waveform generator.

#### ***Allowable Subject Matter***

Claims 1, 2, 4-6, 17-24 and 26 are allowed.

Claims 29, 30, 32, 34, 35 and 37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art fails to show or fairly suggest application of a polygonal or sine wave signal to one side of a piezoelectric element while the opposing side is likewise

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applied with a signal based on the signal applied to the other side and is also polygonal or a sine wave. The prior art fails to show or fairly suggest such voltage application to a piezoelectric element for use in a piezoelectric motor device such that a related component is driven by action of the piezoelectric element.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The other cited prior art document (Treu, '768) shows outputs of amplifiers having signals of different phases.

Direct inquiry concerning this action to Examiner Dougherty at (703) 308-1628.

*Xm C*  
tmd

February 5, 2003

*Rhonda M. Dougherty*

*2834*